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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,993	10/17/2000	John Eric Kleider	GE04563	3158
22863	7590	04/21/2005	EXAMINER	
MOTOROLA, INC. CORPORATE LAW DEPARTMENT - #56-238 3102 NORTH 56TH STREET PHOENIX, AZ 85018			LIU, SHUWANG	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 04/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/690,993	Applicant(s) KLEIDER ET AL	
	Examiner Shuwang Liu	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2004.
 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☒ Claim(s) 1-11 and 30 is/are allowed.
 6) ☒ Claim(s) 12, 13 and 22 is/are rejected.
 7) ☒ Claim(s) 14-21 and 23-29 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/22/04, with respect to claims 1-4, 7 and 8 have been fully considered and are persuasive. The rejection of claims 1-4, 7 and 8 has been withdrawn.

2. Applicant's arguments filed 11/22/04 with respect to claims 12 and 22 have been fully considered but they are not persuasive. The Examiner has thoroughly reviewed Applicant's arguments but firmly believes that the cited reference reasonably and properly meets the claimed limitation as rejected.

(1) regarding claim 12:

Applicant's argument – the Examiner has failed to allege any teaching in the cited reference, which make known or obvious transmission of OFDM data over “more than one user channel” in connection with the wideband channel.

Examiner's response –As disclosed by Polley et al., “during initialization the receiver can inform the transmitter that subchannels 33, 34, 35, and 36 have a low SNR and should only carry two bits each. The results in a symbol constellation composed of four points (“4-QAM”) being used for subchannels 33, 34, 35 and 36.” Therefore, the subchannels 33, 34, 35 and 36 read on “more than one user channel”, wherein each of the user channels comprises at least one of said subchannels.

(2) regarding claim 22:

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Applicant's argument – Contrary to the Examiner's assertions, zero subchannel signal level is not equivalent to "n=2 QPSK in table 1", QPSK still enables a signal, which could be used with respect to an otherwise obstructed subchannel.

Examiner's response – The applicant recited "at one of zero subchannel signal level, an intermediate subchannel signal level, and a maximum subchannel signal level in response to said SNR therein" in claim. If the applicant does not agree "zero subchannel signal level is not equivalent to "n= 2 QPSK in table 1", an intermediate subchannel signal level (n=4 16QAM or n=5 32QAM) and a maximum subchannel signal level in response to said SNR are shown in table 1. At least, the intermediate subchannel signal level (n=4 16QAM or n=5 32QAM) or the maximum subchannel signal level is one of claimed subchannel signal levels. Furthermore, Applicants are reminded that the Examiner is entitled to give the broadest reasonable interpretation to the language of claims. So the Examiner considers "QPSK in table 1" is zero subchannel signal level as compared to 256QAM signal level, 16 QAM or 32 QAM is an intermediate subchannel signal level as compared to QPSK and 256QAM, and 256 QAM is a maximum subchannel signal level as compared to QPSK and 32QAM within the broad meaning of the term. The Examiner is not limited to Applicant's definition which is not specifically set forth in the claims. *In re Tanaka et al.*, 193 USPQ 139, (CCPA) 1977.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Polley et al. (US 6,363,109).

As shown in figure 2 and 4-8, Polley et al. discloses an orthogonal frequency-division multiplex (OFDM) communication system utilizing a plurality of subchannels, comprising:

(1) regarding claim 12:

producing a modulation profile of said wideband channel, wherein said modulation profile is responsive to a signal-to-noise ratio (SNR) for each subchannel in

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said plurality of subchannels within said wideband channel (column 7, line 53-column 8, line 5);

transmitting OFDM data in response to said modulation profile (column 7, line 53-column 8, line 5 and claim 1); and

wherein said transmitting activity transmits said OFDM data over more than one user channel (for example, subchannels 33, 34, 35 and 36) (column 7, lines 59-67).

(7) regarding claim 13:

wherein each of the user channels comprises at least one of said subchannels (column 7, lines 52-67).

5. Claim 22 is rejected under 35 U.S.C. 102(e) as being anticipated by Wu et al. (US 6,134,273).

As shown in figures 1-7, Wu et al. discloses an orthogonal frequency-division multiplex (OFDM) communication system utilizing a plurality of subchannels, comprising:

an OFDM receiver configured to obtain a signal-to-noise ratio (SNR) for each subchannel in said plurality of subchannels within said wideband channel (column 2, line 48-67); and

an OFDM transmitter (see figure 3) in communication with said OFDM receiver and configured to transmit OFDM data so that said OFDM receiver receives said OFDM data in each subchannel within said plurality of subchannels within said wideband channel at one of zero subchannel signal level (for example, $n=2$ QPSK in table 1), an

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intermediate subchannel signal level ($n=4$ 16QAM), and a maximum subchannel signal level in response to said SNR therein ($n=8$ 256 QAM) (column 3, lines 1- 27 and column 5, lines 2-9).

Allowable Subject Matter

1. Claims 1-11 and 30 are allowed.
2. Claims 14-21 and 23-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
3. The following is a statement of reasons for the indication of allowable subject matter: the prior art fails to teach a method of orthogonal frequency-division multiplex (OFDM) communication via a plurality of subchannels within a noncontiguous wideband channel, said method comprising receiving a reference signal transmitted over each subchannel in said plurality of subchannels within said wideband channel and determining an impeded subchannel each of said subchannels in which said SNR is less than said first least SNR threshold and greater than or equal to a second least-SNR requirement.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

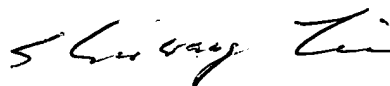
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is 571 272-3036. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Shuwang Liu
Primary Examiner
Art Unit 2634

April 7, 2005